

## CLAIMS

What is claimed is:

1. An apparatus comprising:  
a first plate having a plurality of v-shaped grooves to hold a set of optical fibers; and  
a second plate having a v-shaped groove to hold a secondary optical fiber;  
the second plate being movable relative to the first plate, to enable an optical coupling of the secondary optical fiber to one of the optical fibers of the first set of optical fibers.
2. The apparatus defined in Claim 1 wherein the set of optical fibers comprise optical fibers from a line card.
3. The apparatus defined in Claim 1 further comprising:  
an actuation device including shaped memory metal to move the second silicon plate in response to an electric signal.
4. The apparatus defined in Claim 1 further comprising:

a line card having a plurality of primary optical fibers;  
wherein the set of optical fibers is connected to the line card, and each  
primary optical fiber corresponds to a fiber from the set of optical fibers.

5. The apparatus defined in Claim 4, further comprising:

a control module to detect an inoperative optical fiber, and to cause the  
secondary optical fiber to couple with the corresponding optical fiber from the  
set of optical fibers.

6. The apparatus defined in Claim 5, wherein the control module  
periodically moves the second plate relative to the first plate to test whether the  
first and second plates operate together to provide an optical switch.

7. The apparatus defined in Claim 1 wherein the first and second  
plates comprise at least one material selected from a group comprising silicon,  
quartz, sapphire, borosilicate glass, zirconia, metal, a metallic alloy, a metallic  
compound, and plastic.

8. The apparatus defined in Claim 1 further comprising:

a cradle coupled to the second plate;

a yoke coupled to the cradle; and

a platform coupled to the first plate.

9. The apparatus defined in Claim 8 further comprising a spring coupled between the yoke and the cradle to apply a force onto the cradle to maintain position of the first and second plates relative to each other.

10. The apparatus defined in Claim 1 wherein the first and second plates further comprise bearing grooves to hold bearing rods.

11. The apparatus defined in Claim 1 wherein the first and second plates further comprise alignment grooves to hold alignment rods.

12. An apparatus comprising:

a first plate having a plurality of v-shaped grooves to hold a set of optical fibers; and

a second plate having a v-shaped groove to hold a secondary optical fiber, wherein the first and second plates further comprise bearing grooves to hold bearing rods;

the second plate being movable relative to the first plate, to enable coupling of the secondary optical fiber to one of the optical fibers of the first set of optical fibers;

a line card having a plurality of primary optical fibers; and  
wherein the set of optical fibers is connected to the line card, and each  
primary optical fiber corresponds to a fiber from the set of optical fibers.

13. The apparatus defined in Claim 12 further comprising:  
an actuation device including shaped memory metal to move the second  
silicon plate in response to an electric signal.

14. The apparatus defined in Claim 12 further comprising:  
a line card having a plurality of primary optical fibers;  
wherein the set of optical fibers is connected to the line card, and each  
primary optical fiber corresponds to a fiber from the set of optical fibers.

15. The apparatus defined in Claim 14, further comprising:  
a control module to detect an inoperative optical fiber, and to cause the  
secondary optical fiber to couple with the corresponding optical fiber from the  
set of optical fibers.

16. The apparatus defined in Claim 15, wherein the control module  
periodically moves the second plate relative to the first plate to test whether the  
first and second plates operate together to provide an optical switch.

17. The apparatus defined in Claim 12 wherein the first and second plates comprise at least one material selected from a group comprising silicon, quartz, sapphire, borosilicate glass, zirconia, metal, a metallic alloy, a metallic compound, and plastic.

18. The apparatus defined in Claim 12 further comprising:  
a cradle coupled to the second plate;  
a yoke coupled to the cradle; and  
a platform coupled to the first plate.

19. The apparatus defined in Claim 18 further comprising a spring coupled between the yoke and the cradle to apply a force onto the cradle to maintain position of the first and second plates relative to each other.

20. The apparatus defined in Claim 12 wherein the first and second plates further comprise alignment grooves to hold alignment rods.

21. An apparatus comprising:  
a first plate having a plurality of v-shaped grooves to hold a set of optical fibers; and

a second plate having a v-shaped groove to hold a secondary optical fiber;

the second plate being movable relative to the first plate, to enable coupling of the secondary optical fiber to one of the optical fibers of the first set of optical fibers;

a cradle coupled to the second plate;

a yoke coupled to the cradle;

a platform coupled to the first plate; and

a spring coupled between the yoke and the cradle to apply a force onto the cradle to maintain position of the first and second plates relative to each other.